U.S. Department
of Transportation
**Pipeline and
Hazardous Materials
Safety Administration**

**East Building, PHH-23
1200 New Jersey Ave.,
Washington, D.C. 20590**

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U)
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/6162/B(U), REVISION 18**

REVALIDATION OF CANADIAN COMPETENT AUTHORITY CERTIFICATE CDN/2008/B(U)

This certifies that the radioactive material package design described is hereby approved for use within the United States for import and export shipments only. Shipments must be made in accordance with the applicable regulations of the International Atomic Energy Agency[1] and the United States of America[2].

1. Package Identification - F-127 J-Rod Container, Serial Nos. 50, 52 and 54.

2. Package Description and Authorized Radioactive Contents - as described in Canadian Certificate of Competent Authority No. CDN/2008/B(U), Revision 14 (attached).

3. General Conditions -

   a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.

   b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

   c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

4. Marking and Labeling - The package shall bear the marking USA/6162/B(U) in addition to other required markings and labeling.

5. Expiration Date - This certificate expires on November 30, 2012.

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[1] "Regulations for the Safe Transport of Radioactive Materials, 1996 Edition (Revised)", No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

[2] Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

CERTIFICATE USA/6162/B(U), REVISION 18

This certificate is issued in accordance with paragraph 808 and 816 of the IAEA Regulations and Section 173.473 of Title 49 of the Code of Federal Regulations, in response to the March 17, 2009 petition by Best Theratronics, Ottawa, Ontario, Canada and in consideration of other information on file in this Office.

Certified by:

MAR 30 2009

Bob Richard (DATE)
Deputy Associate Administrator for Hazardous Materials Safety

Revision 18 - Issued to revalidate Canadian Certificate of Competent Authority No. CDN/2008/B(U), Revision 14, and to extend the expiration date for use of package design.

Canadian Certificate No.	Issue Date	Expiry Date	CNSC File
CDN/2008/B(U) (Rev. 14)	**Nov-17-2008**	**Nov-30-2012**	**30-A2-99-0**

Certificate
for
Transport Package Design

The transport package design identified below is certified by the Canadian Nuclear Safety Commission pursuant to paragraph 21(1)(h) of the *Nuclear Safety and Control Act* and Section 7 of the *Packaging and Transport of Nuclear Substances Regulations*, and to the 1973 Revised Edition (as amended) of the IAEA *Regulations for the Safe Transport of Radioactive Material.*

REGISTRATION OF USE OF PACKAGES

All users of this authorization shall register their identity in writing with the Canadian Nuclear Safety Commission prior to the first use of this authorization and shall certify that they possess the instructions necessary for preparation of the package for shipment.

PACKAGE IDENTIFICATION

Designer: **MDS Nordion**
Make/Model: **F-127 J-Rod Shipping Container, Serial Nos. 50, 52 and 54**
Mode of Transport: **Air, Sea, Road, Rail**

IDENTIFICATION MARK

The package shall bear the competent authority identification mark **"CDN/2008/B(U)"**.

PACKAGE DESCRIPTION

The F-127 J-Rod Shipping Container, as shown on MDS Nordion Drawing No. A06024, (Rev. Z), consists of a 254 mm thick lead-shielded, steel-encased body located within a circumferential steel-plated flameshield and a thermally-insulated top and bottom, all supported by a structural steel skid. The drain lines for both the plug and body are either permanently blocked or blocked with removable cable assemblies. The containment system consists of either the authorized capsules or the F-407 insert and the steel-encased, lead-shielded container.

An illustration of the package is shown on attached Drawing No. F-127, (Rev. 24).

The configuration of the package is as follows:

Shape: **Cylindrical**
Mass: **3447 kg**
Length: **800 mm**
Width: **1016 mm**

Shielding: **Lead**
Outer Casing: **Steel**
Height: **1242 mm**
Diameter: **n/a**

Canadian Certificate No.	Issue Date	Expiry Date	CNSC File
CDN/2008/B(U) (Rev. 14)	**Nov-17-2008**	**Nov-30-2012**	**30-A2-99-0**

AUTHORIZED RADIOACTIVE CONTENTS

This package is authorized to contain not more than 2,200 TBq (60,000 Ci) of Cobalt 60 in the form of metal pellets or nickel-plated slugs in the following MDS Nordion capsules:

C-132, C-133, C-140, C-146, C-151, C-164, C-174A, C-174B, C-177, C-185, AC-191, AC-195, C-196, C-198, C-199, C-200, C-205, C-215, C-230, TC-239, C-252, XC-310, XC-318, XC-325, XC-330, AC-339; or

not more than 185 TBq (5000 Ci) of Carbon 14 in the form of activated aluminum nitride pellets contained within an aluminum capsule and further contained within a sealed F-407 insert.

QUALITY ASSURANCE

Quality assurance for the use, maintenance and inspection of the package shall be in accordance with:

- Best Theratronics Document No. 5.05-QA-01 (1)*, "Radioactive Material Transport Package Quality Plan"
- Canadian Packaging and Transport of Nuclear Substances Regulations
- IAEA Regulations
- * or latest current revision

SHIPMENT

The preparation for shipment of the package shall be in accordance with:

- MDS Nordion Procedure No. IN/PP 0072 F127, (Rev. 16), Preparation for Shipment of the F-127 and F-127-X Transport Packagings
- Canadian Packaging and Transport of Nuclear Substances Regulations
- IAEA Regulations

The average surface heat flux of the package with 2200 TBq of Cobalt 60 is 164 W/m^2. For heat fluxes exceeding 15 W/m^2, supplementary arrangements must be made with the carrier to ensure adequate heat dissipation.

Air transport is restricted to a maximum of 960 TBq of Cobalt 60 to meet the temperature requirement of

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CDN/2008/B(U) (Rev. 14)	**Nov-17-2008**	**Nov-30-2012**	**30-A2-99-0**

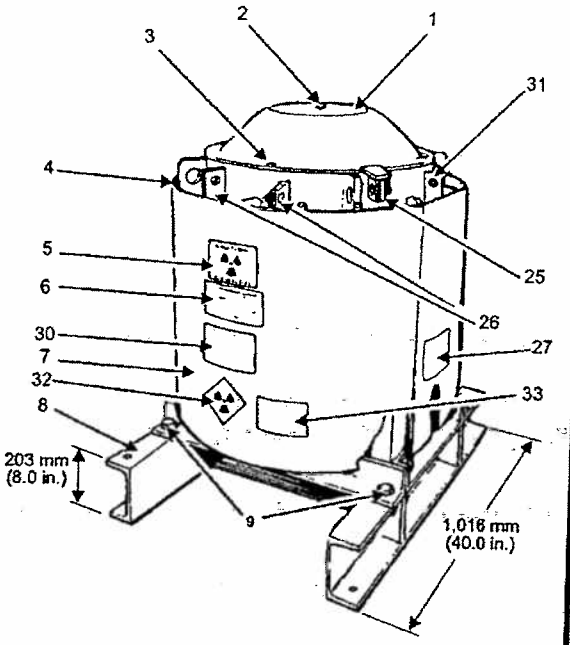
Paragraph 617 of the IAEA Regulations.

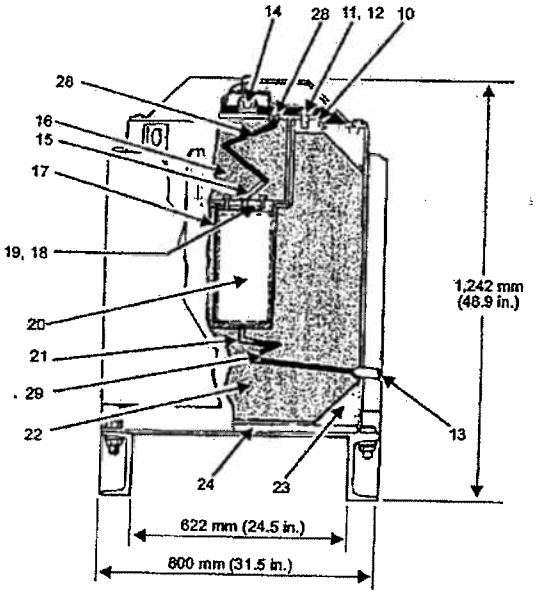
This certificate does not relieve the shipper from any requirement of the government of any country through or into which the package will be transported.

S. Faille
Designated Officer pursuant to paragraph 37(2)(a)
of the Nuclear Safety and Control Act

Parts List

1. Shield Cap with Neoprene Gasket
2. ½ — 13 UNC x ¾ in. lg Hex Bolt (1)
3. ½ — 13 UNC x 1 ¼ in. lg Hex Bolt (4)
4. ½ — 13 UNC x 11/16 in. lg Socket HD (4) to Retain Fireshield
5. Radiation Caution Plate (2)
6. Identification Plate (2)
7. Removable Fireshield
8. Removable Skid
9. Skid Bolts: 1 — 8 UNC x 3 in. lg Hex HD (8)
10. Neoprene Gasket for Plug Assembly
11. Stainless Steel Plug Bolts: ¾ — 10 UNC x 1 ½ in. lg Hex HD (9)
12. Wire Seal
13. Stainless Steel Pipe Plug
14. Plug Lift Lug
15. Vent Tube
16. Plug Assembly
17. Removable Insert
18. Spacer Plates (2) - Type I - Removable
19. Spacer Plates (1) - Type II - Removable
20. Cavity - without 3 Spacer Plates 163 mm Dia x 348 mm (6.4 x 13.7 in.)
    With 3 Spacer Plates 163 mm Dia x 320 mm (6.4 x 12.6 in.)
21. Drain Tube
22. Lead Shielding
23. Vermiculite
24. Transite: 25 mm (1 in.) thick
25. Cap Brackets (4): ½ — 13 UNC x 1 ¾ in. Bolts and Nuts
26. Fireshield Brackets (4): 1 — 8 UNC x 2 ½ in. Bolts and Nuts
27. Warning Plate
28. Ventline Safety Cable Assembly
29. Stainless Steel Wire Brush
30. Storage Plaque (Heat Emitter) (2)
31. Fireshield Brackets (2): ¾ — 10 UNC x 2 ½ in. Bolts and Nuts
32. Category Label (2): on opposite sides of container
33. UN Number Labels (2): one next to each of the two radioactive category labels





Notes

1. CNSC Certificate CDN/2008/B(U)
2. Meets IAEA Type B(U) Requirements
3. Steel Encased Lead Shielding: 254 mm (10 in.)
   With F-211 Insert: 285 mm (11.2 in.)
4. Gross Weight: 3,447 kg (7,600 lb.)
   Plug Weight: 147 kg (325 lb.)
5. Projected Floor Loading: 4,247 kg/m² (870 lb./ft.²)
6. Inserts Available:
   - F-128: Bucket
   - F-180: Cage for 64 Sealed Sources
   - F-216: Carrier for 8 Bulk Capsules
   - F-407: Leakproof Insert for C-14
   - F-415: Bucket
7. Authorized contents: 1) 2,220 TBq (60,000 Ci) cobalt-60
   2) 185 TBq (5,000 Ci) carbon-14
8. For F-127 Serial Numbers 50, 52 and 54, items 13, 28 and 29 of parts list must be installed.

MDS Nordion
447 March Road, P.O. Box 13500
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Tel: (613) 592-2790 · Fax. (613) 592-6937

TITLE

F-127 Transport Packaging

REF. IN/SS 1938 F127 F101102-A06024		REVISED May 04	DCN A1944-D-51B
DATE August 1967		No. F-127	ISSUE 24
DRAWN BW	CHECKED VE	APPROVED MK	SHEET 1 OF 1

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**East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590**

CERTIFICATE NUMBER: USA/6162/B(U)-85, Revision 18

ORIGINAL REGISTRANT(S):

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